Space Weather Forecast

Issued on Saturday, 21 September 2024 at 01:27 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of Moderate flares (R1/R2 Radio Blackouts) throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with peak flare C3.9 at 20/1457 from a region in the north-centre disc. There are currently seven sunspot regions on the disc. There are a number of areas of interest on the disc including the aforementioned region which rapidly grew on 19 Sep and continues to develop in magnetic complexity. A complex region in the southeast is now the largest region on the disc and has exhibited continued growth and decay of spots, continuing to change and evolve between analyses. The region previously responsible for the Strong flare on 14 Sep, is now a comparatively small and simple region compared to its history, but maintains some magnetic complexity that perhaps suggests an ongoing potential for some notable flares. Another region previously of interest passed fully beyond the western limb over the past 24 hours.
No Earth-directed CMEs (coronal mass ejections) occurred.

Solar Wind / Geomagnetic Activity: Solar wind speeds have fluctuated between slow ambient and Slightly Elevated (350-450 km/s) with a general declining trend through the UTC afternoon of 20 Sep. The Interplanetary Magnetic Field has been weak. The important north-south component fluctuated weakly. Geomagnetic activity was mostly Quiet (Kp 0-2) but has increased to Unsettled (Kp 3) in the most recent interval.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remains at background.

Four-Day Space Weather Forecast Summary
Solar Activity: Low to Moderate activity is expected, with a chance of isolated Moderate-class flares. No significant regions are expected to depart or rotate onto the disc during the period.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs currently feature in the forecast. Slightly elevated solar winds are expected to ease to mainly background. Chance of slight enhancement due to the interaction of streams of fast winds from coronal holes. The most likely of these being on Day 2-3 (22-23 Sep) from any interaction with the fast wind of a small coronal hole in the northwest. Mainly Quiet to Unsettled activity (Kp 0-3) with a chance of a spells of Unsettled to Active (Kp 3-4) associated with the potential for fast wind arrivals.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is forecast to be at background with no solar radiation storms occurring.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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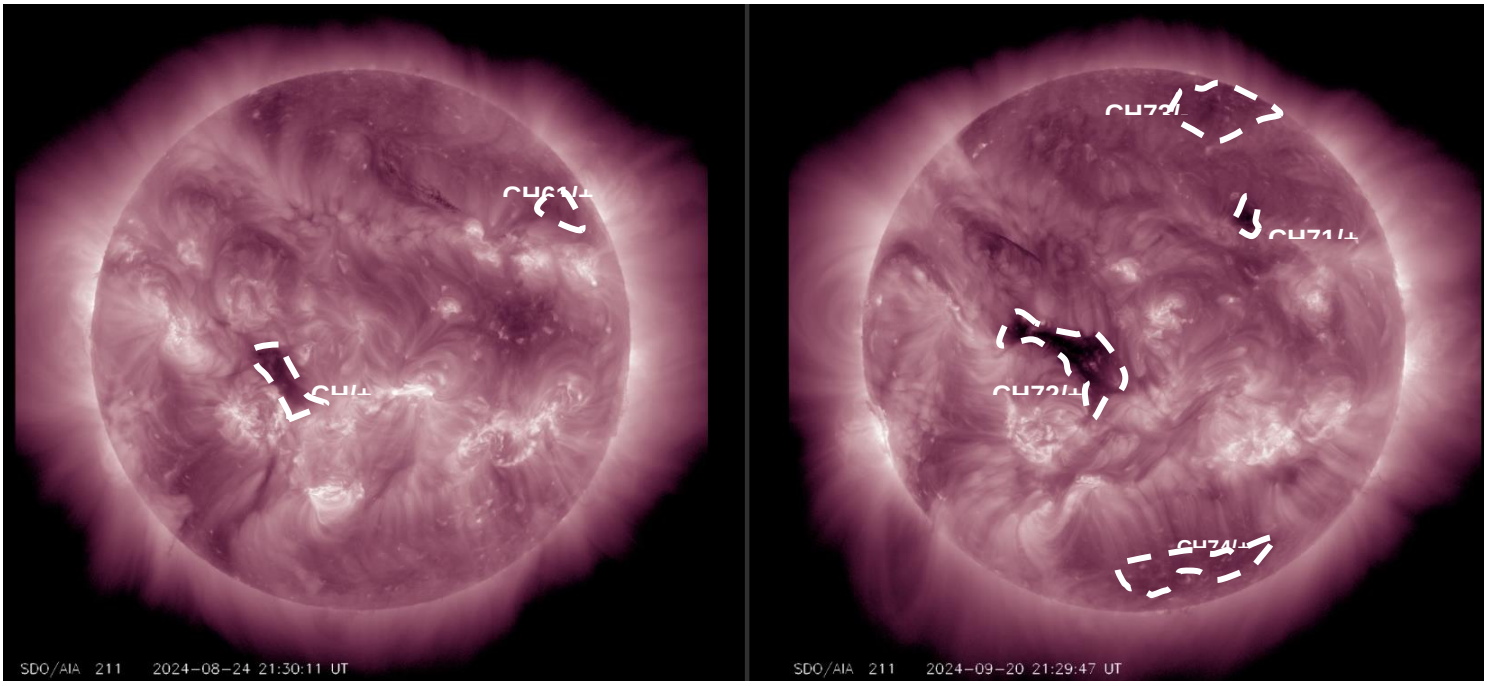
Figure 1: Comparison of coronal holes between the previous rotation (24 Aug) and this rotation (20 Sep)



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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	5	5	5
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	50	50	50	50
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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